Kelly Warner will be presenting the talk.

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Kelly Warner has been a hydrologist with the U.S. Geological Survey since 1986. She received a BA from Knox College and a MS from Northern Illinois University. Past work has included work with the International Joint Commission on ground water within the Great Lakes basin, work with the Illinois Environmental Protection Agency on network design and water quality of public supplies in Illinois, and she is currently working with the National Water-Quality Assessment program of the U.S. Geological Survey in designing a framework for ground-water studies in the glacial aquifer.

DESIGN FOR MONITORING GROUND-WATER QUALITY IN THE GLACIAL DEPOSIT AQUIFERS OF THE U.S.

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Proposed oral presentation for the Track 1: Setting the stage for monitoring (planning, design, and collaboration) in
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Glacial Deposit aquifers cover approximately 660,000 square miles of the conterminous United States. Collectively, ground-water withdrawals for drinking-water supply in 1990 from these deposits were larger than from any other aquifer system in the U.S., accounting for about 13 percent of all ground-water withdrawals for drinking-water supply. The unconsolidated and generally unconfined nature of these aquifers plus the relatively high recharge rates to them make them susceptible to anthropogenic sources of contamination. Long-term monitoring of the quality of ground water in these areas is, therefore, an important aspect of a ground-water protection strategy for the Glacial Deposit aquifers.

The challenge in designing a ground-water-quality monitoring program for this areally extensive and diverse regional aquifer system is how to provide a high-quality assessment given limited monitoring resources. The approach used by the National Water-Quality Assessment (NAWQA) Program was to classify and map the Glacial Deposit aquifers on the basis of 4 variables: (1) aquifer source material; (2)

type of aquifer material; (3) the hydrogeomorphic environment; and (4) aquifer susceptibility. Once classified, historic and ongoing monitoring as well as information gaps in each class were identified. In order to select the most critical areas for both new and continued water-quality monitoring, areas were prioritized on the basis of relative use for drinking-water supply and potential vulnerability to anthropogenic contamination. This approach also provides a framework for linking NAWQA's assessment studies to State and local monitoring programs.